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111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: July 26, 1994

TO: Steve Skare, Project Manager, E & E, Chicago, IL

FROM: Yvette Anderson, TAT-Chemist, E & E, Chicag , IL

THRU: Nabil Fayoumi, TAT-Chemist, E & E, Chicago, IL *NF*

SUBJ: **Inorganic Data Quality Assurance Review**, Sauget Area Two, East St. Louis, St. Clair County, Illinois.

REF: Analytical TDD: T059405804 Project TDD: T059405007
Analytical PAN: EIL0837AAA Project PAN: EIL0837SAA

The data quality assurance review of 3 soil samples collected from the Sauget Area Two site in East St. Louis, Illinois has been completed. Analysis for **TCLP RCRA Metals** was performed by Twin City Testing Corporation of St. Paul, Minnesota in accordance with U.S. EPA Methods 200.7 and 7470.

The soil samples were numbered QD-1 through QD-3 in the field. The laboratory labelled the samples 25160 through 25162.

Data Qualifications:

I Sample Holding Time: Acceptable

The samples were collected on 5/27/94, extracted on 6/2/94, and analyzed on 6/14/94 through 6/16/94. The holding time criteria of 6 months for metals and 28 days for mercury from collection to analysis was satisfied.

II Calibration: Acceptable.

A. Initial Calibration:

Calibration results were within the established quality control limits of 90-110% of the true value for metals. A linearity check was satisfied for mercury.

B. Continuing Calibration:

Calibration results were within the established quality control limits of 90-110% of the true value for metals and 80-120% for mercury.

III Method Blank: Acceptable.

A method blank was analyzed with the samples. No contaminants above the instrument detection limit (IDL) were detected.

IV Interference Check Sample Analysis: Acceptable.

All parameters were within the Interference Check Sample (ICS) control limits of 80-120% of the true values. ICS was run at the beginning and end of sample analysis.

V Matrix Spike/Matrix Spike Duplicate: Acceptable.

The percent recoveries and relative percent differences were within the established quality control limits of 80-120%.

VI Laboratory Control Sample analysis: Acceptable.

The quality control criteria of 80-120% were met for the control sample.

VII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-04 April, 1990). Based upon the information provided, the data are acceptable for use.

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DATE: July 26, 1994

TO: Steve Skare, Project Manager, E & E, Chicago, IL

FROM: Yvette Anderson, TAT-Chemist, E & E, Chicago, IL

THRU: Nabil Fayoumi, TAT-Chemist, E & E, Chicago, IL NF

SUBJ: **Polychlorinated Biphenyl Data Quality Assurance Review,** Sauget Area Two, East St. Louis, St. Clair County, Illinois.

REF: Analytical TDD: T059405804 Project TDD: T059405007
Analytical PAN: EIL0837AAA Project PAN:EIL0837SAA

The data quality assurance review of 3 soil samples collected from the Sauget Area Two site in East St. Louis, Illinois has been completed. Analysis for **Polychlorinated Biphenyls (PCBs)** was performed by Twin City Testing Corporation of St. Paul, Minnesota in accordance with U.S. EPA Method 8080.

The soil samples were numbered QD-1 through QD-3 in the field. The laboratory labelled the samples 25160 though 25162.

Data Qualifications:

I Sample Holding Time: Acceptable.

The samples were collected on 5/27/94, extracted on 6/9/94, and analyzed on 6/14/94. The holding time criteria of 14 days from collection to extraction was satisfied. The analysis of the samples was completed within the 40 day holding time requirement after extraction.

II Instrument Performance: Acceptable.

The standards were within the estimated retention time windows. The retention time for DDT was greater than 12 minutes. Peak resolution was adequate, and retention time was greater than

25%. The retention time shift for the surrogate was less than 0.3% for the capillary column.

III Calibration: Acceptable.

A 3-point calibration check was performed prior to sample analysis. The linearity check was within criterion.

IV Method Blank: Acceptable.

A method blank was analyzed with the samples. No contaminants above the instrument detection limit (IDL) were detected.

V Matrix Spike/Matrix Spike Duplicate: No Action Required.

According to the lab the percent recoveries and relative percent differences could not be calculated due to the large sample dilution factor. Dilution was essential to allow passage of the samples through the GPC for clean-up.

VI Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-04 April, 1990). Based upon the information provided, the data are acceptable for use.

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M E M O R A N D U M

DATE: July 26, 1994

TO: Steve Skare, Project Manager, E & E, Chicago, IL

FROM: Yvette Anderson, TAT-Chemist, E & E, Chicago, IL

THRU: Nabil Fayoumi, TAT-Chemist, E & E, Chicago, IL NF

SUBJ: **Organic Data Quality Assurance Review**, Sauget Area Two, East St. Louis, St. Clair County, Illinois.

REF: Analytical TDD: T059405804 Project TDD: T059405007
Analytical PAN: EIL0837AAA Project PAN: EIL0837SAA

The data quality assurance review of 3 soil samples collected from the Sauget Area Two site in East St. Louis, Illinois has been completed. Analysis for **Semivolatile Organics (SVOAs)** was performed by Twin City Testing Corporation St. Paul, Minnesota, in accordance with U.S. EPA Method 8270.

The soil samples were numbered QD-1 through QD-3 in the field. The laboratory labelled the samples 25160 through 25162.

Data Qualifications:

I Sample Holding Time: Acceptable.

The samples were collected on 5/27/94, extracted on 6/12/94, and analyzed on 6/13/94. The holding time criteria of 14 days from collection to extraction and 40 days from extraction to analysis was met.

II GC/MS Tuning: Acceptable.

GC/MS ion abundance criteria using Decafluorotriphenylphosphine (DFTPP) for SVOA were acceptable.

III Calibration: Acceptable.

A. Initial Calibration:

A 5-point initial calibration was performed prior to analysis. All average relative response factors were greater than 0.05 for SVOA. The percent relative standard deviation (%RSD) between response factors were less than 30%.

B. Continuing Calibration:

The percent difference (%D) between initial and continuing calibration for SVOA were within the quality control criteria of less than or equal to 25%.

IV Method Blank: Acceptable.

A method blank was analyzed with the samples. No contaminants above the estimated quantitation limit (EQL) were detected.

V Internal Standard: No Action Required.

The established quality control criteria for the internal standard (IS) area counts was in the range of -50 to +100% from the associated calibration standard, except chrysene-d12 and perylene-d12. The compounds were not within criteria due to matrix interference or suppression, according to the laboratory. Retention time for IS is within the $\pm$ 30 second control limit.

VI Matrix Spike/Matrix Spike Duplicate: No Action Required.

The percent recoveries and relative percent differences were within the established quality control limits, except pyrene. No action is required.

VII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-04 April, 1990). Based upon the information provided, the data are acceptable for use.

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M E M O R A N D U M

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FROM: Yvette Anderson, TAT-Chemist, E & E, Chicago, IL

THRU: Nabil Fayoumi, TAT-Chemist, E & E, Chicago, IL *NF*

SUBJ: **Organic Data Quality Assurance Review**, Sauget Area Two, East St. Louis, St. Clair County, Illinois.

REF: Analytical TDD: T059405804 Project TDD: T059405007
Analytical PAN: EIL0837AAA Project PAN: EIL0837SAA

The data quality assurance review of 3 soil samples collected from the Sauget Area Two site in East St. Louis, Illinois has been completed. Analysis for **TCLP Semivolatiles (SVOAs)** was performed by Twin City Testing corporation, in accordance with U.S. EPA Methods 3510 and 8270.

The soil samples were numbered QD-1 through QD-3 in the field. The laboratory labelled the samples 25160 through 25162.

Data Qualifications:

I Sample Holding Time: Acceptable.

The samples were collected on 5/27/94, extracted on 6/5/94, and analyzed on 6/6/94. The holding time criteria of 14 days from collection to extraction and 40 days from extraction to analysis was met.

II GC/MS Tuning: Acceptable.

GC/MS ion abundance criteria using Decafluorotriphenylphosphine (DFTPP) for SVOA were acceptable.

III Calibration: Acceptable.

A. Initial Calibration:

A 5-point initial calibration was performed prior to analysis. All average relative response factors were greater than 0.05 for SVOA. The percent relative standard deviation (%RSD) between response factors were less than 30%.

B. Continuing Calibration:

The percent difference (%D) between initial and continuing calibration for SVOA were within the quality control criteria of less than or equal to 25%.

IV Method Blank: Acceptable.

A method blank was analyzed with the samples. No contaminants above the estimated quantitation limit (EQL) were detected.

V Internal Standard: Acceptable.

The established quality control criteria for the internal standard (IS) area counts was in the range of -50 to +100% from the associated calibration standard. Retention time for IS is within the $\pm$ 30 second control limit.

VI Matrix Spike/Matrix Spike Duplicate: No Action Required.

The percent recoveries and relative percent differences were within the established quality control limits, except pentachlorophenol. No action is required.

VII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-04 April, 1990). Based upon the information provided, the data are acceptable for use.

Huntingdon

TCLP METAL RESULTS

(All values are in μg/L which is equivalent to parts-per-billion)

Client ID:	QD1	QD2	QD3			
TCT ID:	25160	25161	25162			
Parameter				PQL	Test Date	Test Method
Arsenic	ND	ND	ND	100	6/14/94	200.7
Barium	320	440	390	10	6/14/94	200.7
Cadmium	ND	ND	ND	10	6/14/94	200.7
Chromium	ND	ND	ND	10	6/14/94	200.7
Lead	ND	ND	ND	50	6/14/94	200.7
Mercury	ND	ND	ND	0.40	6/16/94	7470
Selenium	ND	ND	ND	100	6/14/94	200.7
Silver	ND	ND	ND	10	6/15/94	200.7

ND = Not Detected

PQL = Practical Quantitation Limit

Reference: Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.

EPA Test Methods for Evaluating Solid Wastes, SW-846, November 1986, 3rd Edition.

Federal Register, Volume 55, Number 126, June 1990, 40CFR, Method 1311.

LABORATORY NO: 4416-94-5039

Huntingdon

POLYCHLORINATED BIPHENYL RESULTS
EPA METHOD 8080

(All values are in μg/Kg which is equal to parts-per-billion)

Client ID:	**QD1**	
TCT ID:	25160	
Parameter:		**PQL**
PCB 1016	ND	11,000,000
PCB 1221	ND	11,000,000
PCB 1232	ND	11,000,000
PCB 1242	ND	11,000,000
PCB 1248	ND	11,000,000
PCB 1254	ND	11,000,000
PCB 1260	180,000,000[2]	11,000,000
% Surrogate #1 Recovery:	---%[1]	
% Surrogate #2 Recovery:	---%[1]	
Date Extracted:	6/9/94	
Date Analyzed:	6/14/94	

[1]Low surrogate (diluted out)
[2]Reported value not confirmed within 25% RPD

All results are reported on a dry weight basis.

PQL = Practical Quantitation Limit
ND = Not Detected
Surrogate #1 = TCMX (2,4,5,6-tetrachloro-m-xylene)
Surrogate #2 = DCB (decachlorobiphenyl)

Reference: EPA Test Methods for Evaluating Solid Waste, SW-846, November 1986, 3rd Edition.

LABORATORY NO: 4416-94-5039

Huntingdon

POLYCHLORINATED BIPHENYL RESULTS
EPA METHOD 8080

(All values are in μg/Kg which is equal to parts-per-billion)

Client ID:	**QD2**	
TCT ID:	25161	
Parameter:		**PQL**
PCB 1016	ND	21,000,000
PCB 1221	ND	21,000,000
PCB 1232	ND	21,000,000
PCB 1242	ND	21,000,000
PCB 1248	ND	21,000,000
PCB 1254	ND	21,000,000
PCB 1260	260,000,000	21,000,000
% Surrogate #1 Recovery:	---%[1]	
% Surrogate #2 Recovery:	---%[1]	
Date Extracted:	6/9/94	
Date Analyzed:	6/14/94	

[1]Low surrogate (diluted out)

All results are reported on a dry weight basis.

PQL = Practical Quantitation Limit
ND = Not Detected
Surrogate #1 = TCMX (2,4,5,6-tetrachloro-m-xylene)
Surrogate #2 = DCB (decachlorobiphenyl)

Reference: EPA Test Methods for Evaluating Solid Waste, SW-846, November 1986, 3rd Edition.

LABORATORY NO: 4416-94-5039

Huntingdon

POLYCHLORINATED BIPHENYL RESULTS
EPA METHOD 8080

(All values are in µg/Kg which is equal to parts-per-billion)

Client ID:	**QD3**	
TCT ID:	25162	
Parameter:		**PQL**
PCB 1016	ND	23,000,000
PCB 1221	ND	23,000,000
PCB 1232	ND	23,000,000
PCB 1242	ND	23,000,000
PCB 1248	ND	23,000,000
PCB 1254	ND	23,000,000
PCB 1260	230,000,000[2]	23,000,000
% Surrogate #1 Recovery:	---%[1]	
% Surrogate #2 Recovery:	---%[1]	
Date Extracted:	6/9/94	
Date Analyzed:	6/14/94	

[1]Low surrogate (diluted out)
[2]Reported value not confirmed

All results are reported on a dry weight basis.

PQL = Practical Quantitation Limit
ND = Not Detected
Surrogate #1 = TCMX (2,4,5,6-tetrachloro-m-xylene)
Surrogate #2 = DCB (decachlorobiphenyl)

Reference: EPA Test Methods for Evaluating Solid Waste, SW-846, November 1986, 3rd Edition.

LABORATORY NO: 4416-94-5039

Huntingdon

ORGANOCHLORINE PESTICIDE/PCB RESULTS
EPA METHOD 8080

(All values are in µg/kg which is equal to parts-per-billion)

Client ID:	**CCAL Ch. 25**	**CCAL Ch. 26**	
TCT ID:			
Compounds:			**PQL**
Aldrin	94%	97%	0.83
alpha-BHC	103%	113%	0.83
beta-BHC	90%	105%	0.83
delta-BHC	92%	102%	0.83
gamma-BHC (Lindane)	105%	107%	0.83
4,4'-DDD	100%	126%	1.7
4,4'-DDE	92%	112%	1.7
4,4'-DDT	109%	119%	1.7
Dieldrin	106%	110%	1.7
alpha-Endosulfan	95%	110%	0.83
beta-Endosulfan	100%	105%	1.7
Endosulfan Sulfate	106%	97%	1.7
Endrin	126%	122%	1.7
Endrin Aldehyde	90%	101%	1.7
Heptachlor	102%	105%	0.83
Heptachlor Epoxide	94%	96%	0.83
4,4'-Methoxychlor	101%	101%	8.3
gamma-Chlordane	96%	105%	17
alpha-Chlordane	90%	102%	17
PCB 1260	62%	70%	17
% Surrogate #1 Recovery:	112%	112%	
% Surrogate #2 Recovery:	84%	105%	
Date Extracted:			
Date Analyzed:	6/13/94	6/13/94	

PQL = Practical Quantitation Limit
ND = Not Detected

Surrogate #1 = TCMX (2,4,5,6-tetrachloro-m-xylene)
Surrogate #2 = DCB (decachlorobiphenyl)

Reference: EPA Test Methods for Evaluating Solid Waste, SW-846, November 1986, 3rd Edition.

LABORATORY NO: 4416-94-5039

EPA METHOD 8270 **Huntingdon**
TCLP SEMIVOLATILE ORGANIC COMPOUND RESULTS

Client ID:	QD1	Lab ID (HSN):	QD1
Matrix:	LEACH	Filename:	4157K16
Date Sampled:	05/27/94	Sample Size:	200 mL
Date Received:	05/31/94	Extract Vol.:	1000 uL
Date Extracted:	06/05/94	Dil. Factor:	1
Date Analyzed:	06/06/94		
Date Leached:	06/02/94		

Compounds:	ug/L (PPB)	EQL
Pyridine	50 U	50
1,4-Dichlorobenzene	50 U	50
o-Cresol	50 U	50
m- and/or p-Cresol	50 U	50
Hexachloroethane	50 U	50
Nitrobenzene	50 U	50
Hexachloro-1,3-butadiene	50 U	50
2,4,6-Trichlorophenol	50 U	50
2,4,5-Trichlorophenol	130 U	130
2,4-Dinitrotoluene	50 U	50
Hexachlorobenzene	50 U	50
Pentachlorophenol	130 U	130

Surrogate Recovery		QC LIMITS
2-Fluorophenol	45%	21-110%
Phenol-d5	30%	10-110%
2-Chlorophenol-d4	72%	33-110%
Nitrobenzene-d5	86%	35-114%
2-Fluorobiphenyl	74%	43-116%
2,4,6-Tribromophenol	88%	10-123%
Terphenyl-d14	101%	33-141%

TCLP = Toxicity Characteristic Leaching Procedure
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
Y = Associated internal standard failed method criteria

Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

HPN:

EPA METHOD 8270
TCLP SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID:	QD2	Lab ID (HSN):	QD2
Matrix:	LEACH	Filename:	4157K17
Date Sampled:	05/27/94	Sample Size:	200 mL
Date Received:	05/31/94	Extract Vol.:	1000 uL
Date Extracted:	06/05/94	Dil. Factor:	1
Date Analyzed:	06/06/94		
Date Leached:	06/02/94		

Compounds:	ug/L (PPB)	EQL
Pyridine	50 U	50
1,4-Dichlorobenzene	50 U	50
o-Cresol	50 U	50
m- and/or p-Cresol	50 U	50
Hexachloroethane	50 U	50
Nitrobenzene	50 U	50
Hexachloro-1,3-butadiene	50 U	50
2,4,6-Trichlorophenol	6.3 J	50
2,4,5-Trichlorophenol	130 U	130
2,4-Dinitrotoluene	50 U	50
Hexachlorobenzene	50 U	50
Pentachlorophenol	16 J	130

Surrogate Recovery		QC LIMITS
2-Fluorophenol	52%	21-110%
Phenol-d5	36%	10-110%
2-Chlorophenol-d4	79%	33-110%
Nitrobenzene-d5	92%	35-114%
2-Fluorobiphenyl	74%	43-116%
2,4,6-Tribromophenol	103%	10-123%
Terphenyl-d14	130%	33-141%

TCLP = Toxicity Characteristic Leaching Procedure
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
Y = Associated internal standard failed method criteria

Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

HPN:

EPA METHOD 8270
TCLP SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID:	QD3	Lab ID (HSN):	QD3
Matrix:	LEACH	Filename:	4157K18
Date Sampled:	05/27/94	Sample Size:	200 mL
Date Received:	05/31/94	Extract Vol.:	1000 uL
Date Extracted:	06/05/94	Dil. Factor:	1
Date Analyzed:	06/06/94		
Date Leached:	06/02/94		

Compounds:	ug/L (PPB)	EQL
Pyridine	50 U	50
1,4-Dichlorobenzene	50 U	50
o-Cresol	50 U	50
m- and/or p-Cresol	50 U	50
Hexachloroethane	50 U	50
Nitrobenzene	50 U	50
Hexachloro-1,3-butadiene	50 U	50
2,4,6-Trichlorophenol	50 U	50
2,4,5-Trichlorophenol	130 U	130
2,4-Dinitrotoluene	50 U	50
Hexachlorobenzene	50 U	50
Pentachlorophenol	130 U	130

Surrogate Recovery		QC LIMITS
2-Fluorophenol	52%	21-110%
Phenol-d5	36%	10-110%
2-Chlorophenol-d4	75%	33-110%
Nitrobenzene-d5	90%	35-114%
2-Fluorobiphenyl	71%	43-116%
2,4,6-Tribromophenol	101%	10-123%
Terphenyl-d14	138%	33-141%

TCLP = Toxicity Characteristic Leaching Procedure
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
Y = Associated internal standard failed method criteria

Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

HPN:

EPA METHOD 8270
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID:	QD1	Lab ID (HSN):	25160
Matrix:	SOIL	Filename:	4163P11
Date Sampled:	05/27/94	Sample Size:	1 grams
Date Received:	05/31/94	Extract Vol.:	500 uL
Date Extracted:	06/09/94	Dil. Factor:	10
Date Analyzed:	06/13/94	GPC Factor:	2
		% Moisture:	6.4

Compounds:	ug/Kg (PPB)			EQL
Phenol	110000	UD	Y	110000
bis(2-Chloroethyl)ether	110000	UD	Y	110000
2-Chlorophenol	110000	UD	Y	110000
1,3-Dichlorobenzene	110000	UD	Y	110000
1,4-Dichlorobenzene	110000	UD	Y	110000
1,2-Dichlorobenzene	110000	UD	Y	110000
2-Methylphenol	110000	UD	Y	110000
2,2'-oxybis(1-Chloropropane)	110000	UD	Y	110000
4-Methylphenol	110000	UD	Y	110000
N-Nitroso-di-n-propylamine	110000	UD	Y	110000
Hexachloroethane	110000	UD	Y	110000
Nitrobenzene	110000	UD	Y	110000
Isophorone	110000	UD	Y	110000
2-Nitrophenol	110000	UD	Y	110000
2,4-Dimethylphenol	110000	UD	Y	110000
bis(2-Chloroethoxy)methane	110000	UD	Y	110000
2,4-Dichlorophenol	110000	UD	Y	110000
1,2,4-Trichlorobenzene	110000	UD	Y	110000
Naphthalene	110000	UD	Y	110000
4-Chloroaniline	110000	UD	Y	110000
Hexachlorobutadiene	110000	UD	Y	110000
4-Chloro-3-methylphenol	110000	UD	Y	110000
2-Methylnaphthalene	110000	UD	Y	110000
Hexachlorocyclopentadiene	110000	UD		110000
2,4,6-Trichlorophenol	110000	UD		110000
2,4,5-Trichlorophenol	270000	UD		270000
2-Chloronaphthalene	110000	UD		110000
2-Nitroaniline	270000	UD		270000
Dimethylphthalate	110000	UD		110000
Acenaphthylene	110000	UD		110000
2,6-Dinitrotoluene	110000	UD		110000
3-Nitroaniline	270000	UD		270000
Acenaphthene	110000	UD		110000
2,4-Dinitrophenol	270000	UD		270000
4-Nitrophenol	270000	UD		270000
Dibenzofuran	110000	UD		110000
2,4-Dinitrotoluene	110000	UD		110000
Diethylphthalate	110000	UD		110000
4-Chlorophenyl-phenylether	110000	UD		110000
Fluorene	110000	UD		110000
4-Nitroaniline	270000	UD		270000
4,6-Dinitro-2-methylphenol	270000	UD		270000

(continued)

EPA METHOD 8270
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID: QD1 Lab ID (HSN): 25160
Matrix: SOIL Filename: 4163P11

Compounds:	ug/Kg (PPB)	EQL
N-Nitrosodiphenylamine	110000 UD	110000
4-Bromophenyl-phenylether	110000 UD	110000
Hexachlorobenzene	110000 UD	110000
Pentachlorophenol	270000 UD	270000
Phenanthrene	110000 UD	110000
Anthracene	110000 UD	110000
Carbazole	110000 UD	110000
Di-n-butylphthalate	110000 UD	110000
Fluoranthene	110000 UD	110000
Pyrene	110000 UD	110000
Butylbenzylphthalate	110000 UD	110000
3,3'-Dichlorobenzidine	110000 UD	110000
Benz(a)anthracene	110000 UD	110000
Chrysene	110000 UD	110000
bis(2-Ethylhexyl)phthalate	110000 UD	110000
Di-n-octylphthalate	110000 UD	110000
Benzo(b)fluoranthene	110000 UD	110000
Benzo(k)fluoranthene	110000 UD	110000
Benzo(a)pyrene	110000 UD	110000
Indeno(1,2,3-cd)pyrene	110000 UD	110000
Dibenz(a,h)anthracene	110000 UD	110000
Benzo(g,h,i)perylene	110000 UD	110000

Surrogate Recovery		QC LIMITS
2-Fluorophenol	43%JD	Y 25-121%
Phenol-d5	73%JD	Y 24-113%
2-Chlorophenol-d4	61%JD	Y 20-130%
1,2-Dichlorobenzene-d4	69%JD	Y 20-130%
Nitrobenzene-d5	85%JD	Y 23-120%
2-Fluorobiphenyl	107%JD	30-115%
2,4,6-Tribromophenol	29%JD	19-122%
Terphenyl-d14	96%JD	18-137%

TCL = Target Coumpound List EPA Contract Laboratory Program (OLM01)
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
D = Analysis at a secondary Dilution factor
Y = Associated internal standard failed method criteria
Note: All results are reported on a dry weight basis.
Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

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EPA METHOD 8270
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID:	QD2	Lab ID (HSN):	25161
Matrix:	SOIL	Filename:	4163P12
Date Sampled:	05/27/94	Sample Size:	1 grams
Date Received:	05/31/94	Extract Vol.:	500 uL
Date Extracted:	06/09/94	Dil. Factor:	10
Date Analyzed:	06/13/94	GPC Factor:	2
		% Moisture:	4.2

Compounds:	ug/Kg (PPB)		EQL
Phenol	100000	UD	100000
bis(2-Chloroethyl)ether	100000	UD	100000
2-Chlorophenol	100000	UD	100000
1,3-Dichlorobenzene	100000	UD	100000
1,4-Dichlorobenzene	100000	UD	100000
1,2-Dichlorobenzene	100000	UD	100000
2-Methylphenol	100000	UD	100000
2,2'-oxybis(1-Chloropropane)	100000	UD	100000
4-Methylphenol	100000	UD	100000
N-Nitroso-di-n-propylamine	100000	UD	100000
Hexachloroethane	100000	UD	100000
Nitrobenzene	100000	UD	100000
Isophorone	100000	UD	100000
2-Nitrophenol	100000	UD	100000
2,4-Dimethylphenol	100000	UD	100000
bis(2-Chloroethoxy)methane	100000	UD	100000
2,4-Dichlorophenol	100000	UD	100000
1,2,4-Trichlorobenzene	100000	UD	100000
Naphthalene	100000	UD	100000
4-Chloroaniline	100000	UD	100000
Hexachlorobutadiene	100000	UD	100000
4-Chloro-3-methylphenol	100000	UD	100000
2-Methylnaphthalene	100000	UD	100000
Hexachlorocyclopentadiene	100000	UD	100000
2,4,6-Trichlorophenol	100000	UD	100000
2,4,5-Trichlorophenol	260000	UD	260000
2-Chloronaphthalene	100000	UD	100000
2-Nitroaniline	260000	UD	260000
Dimethylphthalate	100000	UD	100000
Acenaphthylene	100000	UD	100000
2,6-Dinitrotoluene	100000	UD	100000
3-Nitroaniline	260000	UD	260000
Acenaphthene	100000	UD	100000
2,4-Dinitrophenol	260000	UD	260000
4-Nitrophenol	260000	UD	260000
Dibenzofuran	100000	UD	100000
2,4-Dinitrotoluene	100000	UD	100000
Diethylphthalate	100000	UD	100000
4-Chlorophenyl-phenylether	100000	UD	100000
Fluorene	100000	UD	100000
4-Nitroaniline	260000	UD	260000
4,6-Dinitro-2-methylphenol	260000	UD	260000

(continued)

EPA METHOD 8270 **Huntingdon**
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Client ID: QD2 Lab ID (HSN): 25161
Matrix: SOIL Filename: 4163P12

Compounds:	ug/Kg (PPB)		EQL
N-Nitrosodiphenylamine	100000 UD		100000
4-Bromophenyl-phenylether	100000 UD		100000
Hexachlorobenzene	100000 UD		100000
Pentachlorophenol	260000 UD		260000
Phenanthrene	100000 UD		100000
Anthracene	100000 UD		100000
Carbazole	100000 UD		100000
Di-n-butylphthalate	100000 UD		100000
Fluoranthene	100000 UD		100000
Pyrene	100000 UD	Y	100000
Butylbenzylphthalate	100000 UD	Y	100000
3,3'-Dichlorobenzidine	100000 UD	Y	100000
Benz(a)anthracene	100000 UD	Y	100000
Chrysene	100000 UD	Y	100000
bis(2-Ethylhexyl)phthalate	100000 UD	Y	100000
Di-n-octylphthalate	100000 UD	Y	100000
Benzo(b)fluoranthene	100000 UD	Y	100000
Benzo(k)fluoranthene	100000 UD	Y	100000
Benzo(a)pyrene	100000 UD	Y	100000
Indeno(1,2,3-cd)pyrene	100000 UD	Y	100000
Dibenz(a,h)anthracene	100000 UD	Y	100000
Benzo(g,h,i)perylene	100000 UD	Y	100000

Surrogate Recovery			QC LIMITS
2-Fluorophenol	62%JD		25-121%
Phenol-d5	72%JD		24-113%
2-Chlorophenol-d4	69%JD		20-130%
1,2-Dichlorobenzene-d4	70%JD		20-130%
Nitrobenzene-d5	82%JD		23-120%
2-Fluorobiphenyl	106%JD		30-115%
2,4,6-Tribromophenol	69%JD		19-122%
Terphenyl-d14	178%JD	Y	18-137%

TCL = Target Coumpound List EPA Contract Laboratory Program (OLM01)
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
D = Analysis at a secondary Dilution factor
Y = Associated internal standard failed method criteria
Note: All results are reported on a dry weight basis.
Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

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EPA METHOD 8270 **Huntingdon**
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Client ID:	QD3	Lab ID (HSN):	25162
Matrix:	SOIL	Filename:	4163P13
Date Sampled:	05/27/94	Sample Size:	1 grams
Date Received:	05/31/94	Extract Vol.:	500 uL
Date Extracted:	06/09/94	Dil. Factor:	10
Date Analyzed:	06/13/94	GPC Factor:	2
		% Moisture:	10.7

Compounds:	ug/Kg (PPB)		EQL
Phenol	110000	UD	110000
bis(2-Chloroethyl)ether	110000	UD	110000
2-Chlorophenol	110000	UD	110000
1,3-Dichlorobenzene	110000	UD	110000
1,4-Dichlorobenzene	110000	UD	110000
1,2-Dichlorobenzene	110000	UD	110000
2-Methylphenol	110000	UD	110000
2,2'-oxybis(1-Chloropropane)	110000	UD	110000
4-Methylphenol	110000	UD	110000
N-Nitroso-di-n-propylamine	110000	UD	110000
Hexachloroethane	110000	UD	110000
Nitrobenzene	110000	UD	110000
Isophorone	110000	UD	110000
2-Nitrophenol	110000	UD	110000
2,4-Dimethylphenol	110000	UD	110000
bis(2-Chloroethoxy)methane	110000	UD	110000
2,4-Dichlorophenol	110000	UD	110000
1,2,4-Trichlorobenzene	110000	UD	110000
Naphthalene	110000	UD	110000
4-Chloroaniline	110000	UD	110000
Hexachlorobutadiene	110000	UD	110000
4-Chloro-3-methylphenol	110000	UD	110000
2-Methylnaphthalene	110000	UD	110000
Hexachlorocyclopentadiene	110000	UD	110000
2,4,6-Trichlorophenol	110000	UD	110000
2,4,5-Trichlorophenol	280000	UD	280000
2-Chloronaphthalene	110000	UD	110000
2-Nitroaniline	280000	UD	280000
Dimethylphthalate	110000	UD	110000
Acenaphthylene	110000	UD	110000
2,6-Dinitrotoluene	110000	UD	110000
3-Nitroaniline	280000	UD	280000
Acenaphthene	110000	UD	110000
2,4-Dinitrophenol	280000	UD	280000
4-Nitrophenol	280000	UD	280000
Dibenzofuran	110000	UD	110000
2,4-Dinitrotoluene	110000	UD	110000
Diethylphthalate	110000	UD	110000
4-Chlorophenyl-phenylether	110000	UD	110000
Fluorene	110000	UD	110000
4-Nitroaniline	280000	UD	280000
4,6-Dinitro-2-methylphenol	280000	UD	280000

(continued)

EPA METHOD 8270
TCL SEMIVOLATILE ORGANIC COMPOUND RESULTS

Huntingdon

Client ID: QD3 Lab ID (HSN): 25162
Matrix: SOIL Filename: 4163P13

Compounds:	ug/Kg (PPB)		EQL
N-Nitrosodiphenylamine	110000 UD		110000
4-Bromophenyl-phenylether	110000 UD		110000
Hexachlorobenzene	110000 UD		110000
Pentachlorophenol	280000 UD		280000
Phenanthrene	110000 UD		110000
Anthracene	110000 UD		110000
Carbazole	110000 UD		110000
Di-n-butylphthalate	110000 UD		110000
Fluoranthene	110000 UD		110000
Pyrene	110000 UD	Y	110000
Butylbenzylphthalate	110000 UD	Y	110000
3,3'-Dichlorobenzidine	110000 UD	Y	110000
Benz(a)anthracene	110000 UD	Y	110000
Chrysene	110000 UD	Y	110000
bis(2-Ethylhexyl)phthalate	110000 UD	Y	110000
Di-n-octylphthalate	110000 UD	Y	110000
Benzo(b)fluoranthene	110000 UD	Y	110000
Benzo(k)fluoranthene	110000 UD	Y	110000
Benzo(a)pyrene	110000 UD	Y	110000
Indeno(1,2,3-cd)pyrene	110000 UD	Y	110000
Dibenz(a,h)anthracene	110000 UD	Y	110000
Benzo(g,h,i)perylene	110000 UD	Y	110000

Surrogate Recovery			QC LIMITS
2-Fluorophenol	42%JD		25-121%
Phenol-d5	78%JD		24-113%
2-Chlorophenol-d4	59%JD		20-130%
1,2-Dichlorobenzene-d4	76%JD		20-130%
Nitrobenzene-d5	86%JD		23-120%
2-Fluorobiphenyl	110%JD		30-115%
2,4,6-Tribromophenol	17%JD		19-122%
Terphenyl-d14	169%JD	Y	18-137%

TCL = Target Coumpound List EPA Contract Laboratory Program (OLM01)
EQL = Estimated Quantitation Limit (lower calibration limit)
U = Undetected at the given EQL
J = Detected below the EQL (estimated value)
E = Exceeds the upper calibration limit (estimated value)
B = Also detected in the associated Blank
D = Analysis at a secondary Dilution factor
Y = Associated internal standard failed method criteria
Note: All results are reported on a dry weight basis.
Reference: "EPA Test Methods for Evaluating Solid Waste", SW-846, November 1986, 3rd Edition.

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